EXHIBIT A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Orlando, *et al.*	Attorney Docket No.: ALTA-P007
Serial No.:	10/746,333	Group Art Unit: 2629
Filed:	12/23/2003	Examiner: Sheng, Tom V.

Title: GAMMA REFERENCE VOLTAGE GENERATOR

AMENDMENT

The Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In Response to the Office communication of September 6, 2006, please amend the above-identified application as follows:

Amendments to the Drawings begins on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

Conclusion begins on page 11 of this paper.

Amendments to the Drawings:

Figure 1 has been amended to add the legend "-- Prior Art --" as suggested by Examiner.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims:

1. (Currently Amended) An integrated circuit for producing voltage signals on a plurality of outputs comprising:

a plurality of non-volatile storage cells;

circuits for programming coupled to a multiplexer for addressing and programming said storage cells, wherein the addressing is based on a plurality of inputs;

drivers connected to said storage cells and to the plurality of outputs; and

the plurality of inputs connected to said multiplexer for addressing said storage cells,

wherein said voltage signals are gamma reference voltage signals for determining actual driving voltages of columns of a display.

2. (Original) The integrated circuit of claim 1 wherein said non-volatile storage cells are reprogrammable.

3. (Withdrawn) The integrated circuit of claim 1 wherein said voltage signals are gamma reference voltage signals for driving columns of a display.

4. (Original) The integrated circuit of claim 1 wherein said non-volatile storage cells hold analog voltage values which are a constant fraction of said gamma reference voltage signals.

5. (Original) The integrated circuit of claim 1 wherein said circuits for programming require an external source for the high voltage programming means.

6. (Original) The integrated circuit of claim 2 wherein said reprogrammable, non- volatile storage cells are organized into one or more banks of cells wherein each bank contains a predetermined gamma reference voltage signal display condition; and means to switch between the banks based on one or more external signals is provided on said integrated circuit.

7. (Original) The integrated circuit of claim 6 wherein said means to switch between banks can have a switching time from about 10 msec to about one second.

8. (Withdrawn) A method of testing a liquid crystal display requiring gamma reference voltage correction comprising the steps:

a. manufacturing said display with gamma reference control capability which is electrically reprogrammable and non-volatile;

b. testing said display with at least one sensor with optical input;

c. varying gamma reference voltage levels on columns of said display;

d. using a predetermined algorithm to optimize said gamma reference voltage levels to criteria sensed by said at least one sensor; and

e. storing said gamma reference voltage levels in said gamma reference control capability.

9. (Withdrawn) The method of claim 8 wherein the method is repeated more than once under different ambient or display conditions to generate at least one different set of gamma reference voltage levels stored in said gamma reference control capability.

10. (Withdrawn) A method of adjusting a liquid crystal display with gamma reference voltage correction capability comprising the steps:

a. manufacturing said display with gamma reference control capability which is electrically reprogrammable and non-volatile and including at least one sensor on said display to sense at least one ambient condition and means to adjust the gamma reference level based on the output of the sensor;

b. said sensor sensing at least one ambient condition;

c. said adjusting means selecting a set of gamma reference voltage levels based on said sensor output and predetermined instructions; and

d. storing said set of gamma reference voltage levels in said electrically reprogrammable and non-volatile gamma reference control capability.

11. (Withdrawn) A method of programming one or more gamma reference voltage generator integrated circuits attached to a liquid crystal display comprising the steps:

a. selecting one or more columns on said liquid crystal display;

b. applying one or more different gamma voltages to said liquid crystal display columns;

c. storing said applied gamma voltages in reprogrammable, nonvolatile storage cells in said gamma reference voltage generator integrated circuits appropriate to said selected columns;

d. applying one or more optimization criteria algorithms to said selected column optical emission;

e. modifying said one or more different applied gamma voltages based on said one or more optimization criteria algorithms;

f. programming said applied gamma voltages in storage cells in said gamma reference voltage generator integrated circuits appropriate to said selected columns; and

g. repeating steps (d) through (f) until said one or more optimization criteria have been satisfied.

12. (Withdrawn) The method of claim 11 wherein said gamma reference voltage generator integrated circuit requires an external source for the high voltage programming means.

13. (Withdrawn) A liquid crystal display with gamma reference voltage correction capability which is electrically reprogrammable and non-volatile wherein the gamma reference voltage correction capability contains one or more sets of analog voltage levels for optimizing the column voltages under one or more display conditions.

14. (Currently Amended) A method of programming a gamma reference voltage generator integrated circuit comprising the steps:

a. selecting a predetermined address using all address lines;

b. taking ~~the~~ a programming pin high;

c. selecting a predetermined group of storage addresses using a predetermined subset of the address lines;

d. taking the programming pin high to latch the predetermined group of storage address;

e. selecting a predetermined storage cell address using all of the address lines;

f. programming ~~said~~ an applied gamma voltage[[s]] in the selected storage cell by applying incremental voltage pulses from the programming line;

g. monitoring the result of said incremental voltage pulses by reading ~~the~~ an output buffer line associated with said selected storage cell; and

h. continuing the incremental voltage pulses from the programming line until the output buffer line associated with said selected storage cell achieves a predetermined value.

15. (Currently Amended) The method of claim 14 wherein said gamma reference voltage generator integrated circuit requires an external source for ~~the~~ supplying high voltage to the programming pin ~~means~~.

16. (Currently Amended) An integrated circuit for producing voltage signals on a plurality of outputs comprising:

a plurality of non-volatile storage cells;

circuits for programming coupled to a multiplexer for addressing and programming said storage cells, wherein the addressing is based on a plurality of inputs;

drivers connected to said storage cells and to the plurality of outputs;

the plurality of inputs connected to said multiplexer for addressing said storage cells; and

an output pin connected to an output ~~buffer~~ through a second multiplexer connected to all output ~~buffers~~ wherein said output pin is at an ~~the~~ output buffer voltage level of said output when said integrated circuit is in the programming mode for said output ~~buffer~~.

17. (Original) The integrated circuit of claim 16 wherein said non-volatile storage cells are reprogrammable.

18. (Original) The integrated circuit of claim 16 wherein said voltage signals are gamma reference voltage signals for driving columns of a display.

19. (Original) The integrated circuit of claim 16 wherein said non-volatile storage cells hold analog voltage values which are a constant fraction of said gamma reference voltage signals.

20. (Currently Amended) The integrated circuit of claim 16 wherein said circuits for programming require an external source for ~~the~~ supplying high voltage ~~programming means~~.

21. (Original) The integrated circuit of claim 17 wherein said reprogrammable, non-volatile storage cells are organized into one or more banks of cells wherein each bank contains a predetermined gamma reference voltage signal display condition; and means to switch between the banks based on one or more external signals is provided on said integrated circuit.

22. (Original) The integrated circuit of claim 21 wherein said means to switch between banks can have a switching time from about 10 msec to about one second.

Remarks/Arguments

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application and indicating that claims 3, 4, 6, 7 and 14-22 contain allowable subject matter.

Claim Amendments

Claim 1 has been amended to include the allowable subject matter of dependent claim 3 and to eliminate the insufficient antecedent issue of claim 4 and the indefinite issue of claim 1.

Claims 3 and 8-13 have been withdrawn from further consideration

Claim 14 has been amended to eliminate the insufficient antecedent basis issue.

Claim 15, 16 and 20 have been amended to eliminate the indefinite issue.

No new matter has been added in any of the aforementioned amendments.

Claim Rejections – 35 USC §112

Claims 4, 12 and14 are rejected under 35 USC 112, second paragraph, for insufficient antecedent basis. Claim 4 depends from claim 1 which has been amended to eliminate the insufficient antecedent basis issue. Claim 12 has been withdrawn and the rejection is moot. Claim 14 has been amended to eliminate the insufficient antecedent basis issue. Accordingly, the withdrawal of the rejection is respectfully requested.

Claims 1-7, 12 and 16-22 are rejected under 35 USC 112, second paragraph, as being indefinite. Claims 1 and 16 have been amended to eliminate the indefinite issue. Claims 3 and 12 have been withdrawn and the rejection is moot. Claims 2, 4-7 depend, directly or indirectly,

from claim 1. Claims 17-22 depend, directly or indirectly, from claim 16. Accordingly, the withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 USC §102

Claims 1, 2 and 5 are rejected under 35 USC 102(b) as being anticipated by US Patent to Steffensmeier, number 6,373,478 B1 (Steffensmeier). As discussed above, independent claim 1 has been amended to include the allowable subject matter of cancelled dependent claim 3. Thus, amended independent claim 1 is now allowable. Further, dependent claims 2 and 4-7 are also allowable for at least the same reasons as the amended independent claim 1. In view of the above, the aforementioned rejection is now moot. Accordingly, withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 USC §103

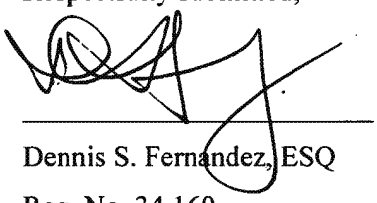
Claims 8-13 are rejected under 35 USC 103(a) as being unpatentable. Claims 8-13 have been withdrawn from further consideration therefore the rejection is now moot. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing, Applicants believe that all of the claims 1, 2, 4-7 and 14-22 are now in condition for allowance and respectfully request the Examiner to issue a timely Notice of Allowance. If for any reason, the Examiner believes any of the claims are not in condition for allowance, he is encouraged to phone the undersigned at (650) 325-4999 so that any remaining issues may be resolved.

The above changes are believed not to add new matter, as support is found in the specification.

Respectfully submitted,



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